



**North Dakota
State Water Commission
and
Office of the State Engineer**



Strategic Plan
2011 - 2013

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(Total Full-Time Employees*	87)	

**Full-Time Employees (FTEs) have been provided to illustrate relative time and resources devoted to projects/programs.*



A message from the State Engineer:

Once again, we are proud to present the North Dakota State Water Commission and Office of the State Engineer's latest Strategic Plan. This new plan was completed to incorporate and adjust for new expectations that have evolved since our previous plan was published back in 2009.

As in the past, the primary purpose of our 2011-2013 Strategic Plan is to clearly document agency direction and expectations we have set for ourselves through our strategic planning timeframe. As part of the planning process, we have reevaluated our agency's goals to ensure that we are achieving standards expected by our constituents. In addition, we have laid out objectives for many of our key projects and programs, to help us more effectively meet our goals. And more specifically, we have defined tasks and actions that our divisions and management need to take to achieve desired outcomes.

In having this plan at our disposal, the agency will be better equipped to document the progress it is making in managing North Dakota's water resources. To measure our progress, we will continue to voluntarily publish agency biennial reports, which outline our activities for each biennium – providing an accurate measure of goal achievement. By publishing this plan, I believe we are once again setting a high standard for ourselves that can be monitored by all interests in the water management community.

Sincerely,

Todd Sando, P.E.

North Dakota State Engineer

VISION

Present and future generations of North Dakotans will enjoy an adequate supply of good quality water for people, agriculture, industry, and fish and wildlife; Missouri River water will be put to beneficial use through its distribution across the state to meet ever increasing water supply and quality needs; and successful management and development of North

Dakota's water resources will ensure health, safety, and prosperity, and balance the needs of generations to come.



PHILOSOPHY and VALUES

In the delivery of services to the citizens of North Dakota, we the employees of the State Water Commission and the Office of the State Engineer value fairness, objectivity, accountability, responsiveness, and credibility. We pledge to use professional and scientific methods to maintain only the highest of standards in our delivery of services to our constituents.

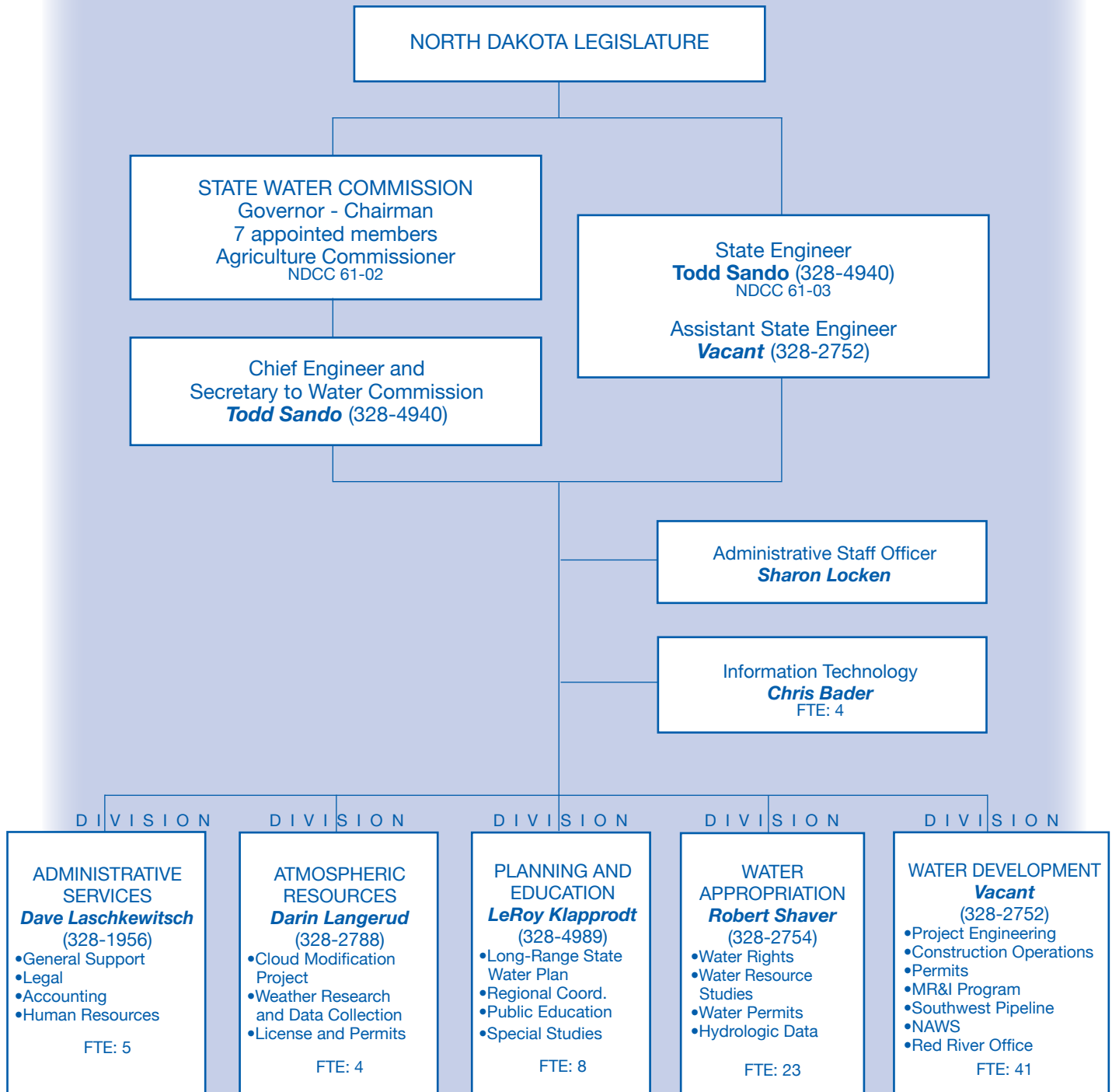
MISSION

To improve the quality of life and strengthen the economy of North Dakota by managing the water resources of the state for the benefit of its people.

AGENCY GOALS

- To regulate the use of water resources for the future welfare and prosperity of the people of North Dakota.
- To develop water resources for the future welfare and prosperity of the people of North Dakota.
- To manage water resources for the future welfare and prosperity of the people of North Dakota.
- To educate the public regarding the nature and occurrence of North Dakota's water resources.
- To collect, manage, and distribute information to facilitate improved management of North Dakota's water resources.
- To conduct research into the processes affecting the hydrologic cycle to improve the management of North Dakota's water resources.

Organizational Chart



TOTAL FULL TIME EQUIVALENTS OF 87 PERSONNEL



Strategic Planning



While the State Water Commission (SWC) and the Office of the State Engineer (SE) are separate state agencies with different directives, many of their responsibilities are entwined and overlap at several levels. For that reason, the activities of these two agencies have been merged into one strategic plan.

Listed here are the projects and programs that were the focus of our strategic planning process. It should be noted that this is by no means a comprehensive list of all efforts pursued by the SWC and the SE, rather it is simply a collection of those efforts that were deemed appropriate to include in our strategic planning process.

Further, the projects and programs identified here have been separated by the divisions that are *primarily* responsible for their management. However, in several instances, many of our projects and programs require staff contributions from multiple divisions.

Administration

Dave Laschkewitsch, Director

Administration & Support Services

Atmospheric Resources

Darin Langerud, Director

ARB Cooperative Observer Network

•

Atmospheric Research & Development Program

•

North Dakota Cloud Modification Project

Focus Projects & Programs



Water Appropriations

Robert Shaver, Director

Community
Water Supply Studies

•

Water Resource Data
Information
Dissemination

•

Water Resource
Monitoring

•

Water Resource-Related
Economic Development

•

Water Resource Research

•

Water Rights
Administration &
Processing

•

Water Rights
Evaluation &
Adjudication

Water Development

Vacant

Cost-Share Program

•

Dam Safety Program

•

Design and Construction

•

Devils Lake Flood Control

•

Floodplain Management

•

Investigations

•

Municipal, Rural &
Industrial Water Supply

•

Northwest Area Water
Supply

•

Red River Valley
Water Supply

•

Regulatory Program

•

Silver Jackets Program

•

Southwest Pipeline
Project

Planning & Education

Lee Klapprodt, Director

State Water
Management Plan

•

Water Education
for Teachers

•

Watershed Plan
Coordination

Program Overview:

The Administrative Services Division provides the overall direction of agency powers and duties as described in the state's water laws. The activities include both the State Engineer and State Water Commission's operations, as well as accounting, information technology (IT), human resources, records management, legal support, and support services for all agency projects and programs.

Administration & Support Services

Budget and fiscal control work is accomplished within the provisions of statutory law and principles or rules of that law. Agency accounting consists of keeping financial records, preparation of financial statements and reports,

project and program cost accounting, preparation of budgets, responding to audit requests and recommendations, and proper control of various funds appropriated by the Legislature.

Human Resources works as a business partner with and for the divisions of the State Water Commission in developing, implementing, and supporting workforce programs that seek to recruit, develop, and retain a qualified, diverse, and engaged workforce.

The Division also works on contracts and agreements that are necessary to carry out investigations, planning, and cooperation with various other agencies in water resources management.

Information Technology supports general agency business operations in areas related to work-flow management and office automation. Information Technology also supports and enhances agency data collection and management functions, and broader engineering and scientific functions.

Agency Goals Satisfied:

- To develop water resources for the future welfare and prosperity of the people of North Dakota.
- To manage water resources for the future welfare and prosperity of the people of North Dakota.
- To conduct research into the processes affecting the hydrologic cycle to improve the management of North Dakota's water resources.
- To collect, manage, and distribute information to facilitate improved management of North Dakota's water resources.
- To educate the public regarding the nature and occurrence of the North Dakota's water resources.

Action Plan:

TASKS	TARGET DATES
Prepare and submit the agency's budget	Aug. 2012
Coordinate the timing of agency bonding	As needed
Coordinate development of agency testimony for legislative appropriations hearings	Dec. 2012
Maintain accounting records, and provide information technology and records management services	Ongoing
Bill federal, state, and local entities for their share of project costs	Ongoing
Provide legal support, including research and contract development	Ongoing
Maintain an agency IT strategic plan, and coordinate agency IT efforts with external and statewide initiatives	Ongoing
Support, maintain, and evolve agency IT infrastructure	Ongoing

Program Objective:

- Provide umbrella administrative and technology services that support agency projects and programs.

Assumptions and Obstacles:

Talent shortages, an aging workforce, and a new generation with changing expectations about the contemporary work environment, will challenge our ability to retain and acquire adequate talent in the future.

Program Overview:

The Atmospheric Resource Board's (ARB) Cooperative Observer Network has collected growing season rainfall and hail data from volunteer observers statewide since 1977. Since that time, participation has ranged between 700 and 1,000 observers annually, making it one of the highest density precipitation observation networks in the U.S. In all, more than 3,000,000 daily precipitation observations, and nearly 12,000 hail observations have been reported.

ARB Cooperative Observer Network

Action Plan:

TASKS	TARGET DATES
Manage the program for daily observation of rainfall, hail, and snow, including data entry, quality control, and GIS mapping	Ongoing
Produce growing-season map products and manage volunteer renewal for following years	Fall, annually
Recruit new volunteers	Spring, annually
Send reporting instructions, reporting cards, and rain gauges for reporting seasons	March 2012 and 2013
Expand the online reporting program	Winter, annually
Expand snowfall measurements in critical areas	Winter, annually

Agency Goals Satisfied:

- To educate the public regarding the nature and occurrence of North Dakota's water resources.
- To collect, manage, and distribute information to facilitate improved management of North Dakota's water resources.

Program Objectives:

- Make high-resolution precipitation and hail data available to counties, states, federal agencies, private organizations, and the public.
- Provide the entire database online for data download or review.
- Increase online reporting and produce value-added products that will be useful to a larger audience.
- Expand snowfall measurements in critical areas to assist with spring flood forecasting.

Assumptions and Obstacles:

Continuation and expansion of existing statewide precipitation observations will require continued funding for agency operations and equipment.

Program Overview:

North Dakota has a long history of research in weather modification. Since the mid-1980s, seven field research programs have been conducted in the state, most recently through focused campaigns in 2006, 2008, and 2010. The program has previously been funded by the Bureau of Reclamation, and the National Oceanic and Atmospheric Administration, with the addition of state cost-share.

ARB Cooperative Research Program

Agency Goals Satisfied:

- To educate the public regarding the nature and occurrence of North Dakota's water resources.
- To collect, manage, and distribute information to facilitate improved management of North Dakota's water resources.
- To conduct research into processes affecting the hydrologic cycle to improve the management of North Dakota's water resources.

Program Objectives:

- Better quantify the physical processes of rainfall and hail formation.
- Improve operational application of cloud seeding technologies.
- Better quantify effects through development and application of improved evaluation techniques.

Assumptions and Obstacles:

Funding is the primary obstacle for the Cooperative Research Program. A multi-state effort is underway through the North American Weather Modification Council to secure federal funding through an authorized program.

Action Plan:

TASKS	TARGET DATES
Work with the North American Weather Modification Council and Weather Modification Association to establish a federally-funded research program	Ongoing
Continue the Polarimetric Cloud Analysis and Seeding Test (POLCAST) hygroscopic seeding research program	Summer 2012



Program Overview:

Rural water entities and municipalities in need of help with their water supply can access staff for interpretation of existing data. They can also apply for cost-share assistance from the SWC for water supply studies. Rural water entities and municipalities use these water-resource studies to help with their decisions regarding water-supply concerns and options.

Agency Goals Satisfied:

- To develop water resources for the future welfare and prosperity of the people of North Dakota.
- To conduct research into the processes affecting the hydrologic cycle to improve the management of North Dakota's water resources.

Program Objective:

- Provide interpretation of existing water resource data.
- Conduct studies of potential water resources.
- Publish reports on water resource studies.
- Provide guidance and/or recommendations with regard to water supply concerns.
- Process appropriate paperwork to establish or maintain water rights.

Community Water Supply Studies

Action Plan:

TASKS

Conduct water supply studies

TARGET DATES

As requested



Assumptions and Obstacles:

As more communities tie in to expanding regional water supply systems, the need for individual community water supply studies has declined in recent bienniums.

Program Overview:

Beginning in 1943, the North Dakota Legislative Assembly appropriated funds to the SWC for cost-share assistance on existing drain channels. Since then, the SWC cost-share program has significantly evolved, and has now developed into a program that adequately meets the goals of the SWC, and the needs of our constituents.

Cost-Share Program

The SWC cost-share program identifies types of projects that are eligible for cost-share assistance per the agency policy. Currently, as determined by that policy, the SWC cost-shares on several types of projects, and has existing agreements to fund: drainage and diversion channels, ring dikes, water supply pipelines, engineering and other studies, miscellaneous education and research projects, emergency action plans, imagery acquisition, dam safety recon-

structions, recreation-based lake facilities, dikes, levees, woody debris snagging and clearing, non-point source pollution, central irrigation system supply lines, rip-rap bank stabilizations, dam removals, and technical assistance projects.

Upon determining a proposed project's eligibility and approval of funding, an agreement/contract is entered into with the project's sponsor describing the scope of work, how funds will be disbursed, insurance and indemnification requirements, and other terms as applicable. Request for payments are processed per the terms of the agreement. At the discretion of the SWC, projects are reviewed and/or inspected upon final payment.

Agency Goals Satisfied:

- To develop water resources for the future welfare and prosperity of the people of North Dakota.
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- To conduct research into the processes affecting the hydrologic cycle to improve the management of North Dakota's water resources.
- To collect, manage, and distribute information to facilitate improved management of North Dakota's water resources.
- To educate the public regarding the nature and occurrence of North Dakota's water resources.

Action Plan:

TASKS	TARGET DATES
Review approximately 65-75 cost-share inquiries/ applications for cost-share eligibility and assistance	June 30, annually
Present 45-55 cost-share proposals for approval and authorization by SWC	June 30, annually
Develop agreements/ contracts for 60-70 approved and authorized projects	June 30, annually
Process requests for payment, monitor agreement/ contract compliance, and review and inspect work for approximately 90 active projects	June 30 annually

Program Objective:

- To financially assist federal and state agencies and political subdivisions with eligible projects categorized as rural flood control, water supply, flood control, dam safety, recreation, snagging and clearing, studies, irrigation, bank stabilization, dam removal/breach, and technical assistance.

Assumptions and Obstacles:

The amount of funds available for the cost-share program is dependent on state appropriations and agency budgeting from the contract fund.

Program Overview:

The National Dam Safety Program was initiated in 1978 through the U.S. Army Corps of Engineers after the failure of Toccoa Falls Bible College Dam in Georgia. The North Dakota Dam Safety Program was initiated to continue this program of inspecting dams and assessing their safety. Dam Safety Program staff inspect 109 high and medium hazard dams on a rotational basis, so that every dam on the list is fully inspected at least once every ten years. High hazard dams are inspected at least once every four years. In addition, each spring, 144 dams are given a partial inspection to check on the status of the dams after the spring runoff season. Other dams in North Dakota are inspected on an “as needed” basis, such as when a dam is built, rehabilitated, or when the public has a concern about a dam.

Agency Goals Satisfied:

- To regulate the use of water resources for the future welfare and prosperity of the people of North Dakota.
- To educate the public regarding the nature and occurrence of North Dakota’s water resources.
- To collect, manage, and distribute information to facilitate improved management of North Dakota’s water resources.

Dam Safety Program

Program Objectives:

- On a rotational basis, conduct full periodic inspections of all non-federally owned high hazard dams and all non-federally owned medium hazard dams greater than 10 feet high.
- Conduct annual partial inspections of all non-federally owned high and medium hazard dams, and selected low hazard dams.
- Report inspection findings to the respective dam owners so they can address problems and improve the safety of their dams.
- Update and maintain an inventory of all dams in North Dakota.
- Encourage the development of emergency action plans (EAPs) for dams.

Assumptions and Obstacles:

- Federal funding through the National Dam Safety Program is used to improve the dam safety program by providing annual funding for training, equipment, salary for one part-time position, and funding for other projects such as the development of EAPs.

Action Plan:

TASKS	TARGET DATES
Conduct partial inspections of 144 dams each spring	June 30, annually
Conduct full periodic inspections of an average of 21 dams per year	Oct. 31, annually
Report findings and recommendations from the full periodic inspections to dam owners	May 1, annually
Maintain and update North Dakota’s dam inventory	Ongoing
Submit data to the National Inventory of Dams	As requested
Assist dam owners with developing EAPs, and review and approve EAPs as they are submitted	Ongoing
Manage federal grant funds used for the development of EAPs as a supplement to the state cost-share program	Ongoing

Program Overview:

The Design and Construction Sections are involved with assisting dam owners throughout the state in designing repairs and modifications to existing water facilities. The section works with the North Dakota Game and Fish Department (Department) to maintain outlet structures and install low-level drawdowns used by the Department to manage fisheries. The section is also involved in directing emergency actions during major dam incidents.

Design and Construction

Agency Goals Satisfied:

- To develop water resources for the future welfare and prosperity of the people of North Dakota.
- To educate the public regarding the nature and occurrence of North Dakota's water resources.
- To collect, manage, and distribute information to facilitate improved management of North Dakota's water resources.

Program Objectives:

- Maintain water resource facilities within the state to ensure public safety, and enhance quality of life by meeting multiple uses such as flood control, water supply, and recreation opportunities.
- Work with the U.S. Geological Survey to maintain the network of stream gauges throughout the state, thereby ensuring reliable data necessary for managing North Dakota's water resources.

Assumptions and Obstacles:

Weather is the primary obstacle for timely completion of annual construction and repair efforts.

Action Plan:

TASKS

TARGET DATES

Assist dam owners with design and repairs of existing water facilities

Ongoing

Repair and maintain North Dakota's stream gauge network through cooperative efforts with the U.S. Geological Survey

Summer, annually

Conduct general construction projects

Summer, annually



Project Overview:

Since 1993, Devils Lake has risen about 30 feet. The lake reached a record elevation of 1452 in June of this year and covers over 180,000 acres. The state's approach to solving the flooding problems in the Devils Lake region has involved a three-pronged approach, which includes upper-basin water management, infrastructure protection, and an emergency outlet to the Sheyenne River.

Landowner payments for floodwater retention, which involves the upper-basin water management element of the three-pronged approach, has been ongoing for more than a decade. The state completed an emergency outlet to the Sheyenne River in 2005 that was sized for a maximum discharge of 100 cubic feet per second (cfs), and in the spring of 2010, increased the capacity to 250 cfs. Since the outlet has been in operation it has removed over 50,000 acre-feet of water from the lake.

Regarding the infrastructure portion of the three-pronged approach, the city of Devils Lake continues to face a threat from the swelling lake. The city is working with the U.S. Army Corps, the SWC, and other state and federal agencies to raise the embankment protecting the city.

The city of Minnewaukan is also under threat from the lake, but no final decisions have been made regarding protection alternatives.

Agency Goal Satisfied:

- To manage water resources for the future welfare and prosperity of the people of North Dakota.

Project Objective:

- Reduce the risk of flooding around Devils Lake by implementing a three-pronged approach, which includes, upper-basin water management, infrastructure protection, and operation of an outlet.

Assumptions and Obstacles:

Water quality constraints on the Sheyenne River have limited outlet operation and will need to be increased in order to remove additional water from the lake.

For a map of North Dakota's Devils Lake outlet project, see the Appendix.

Devils Lake Flood Control



Action Plan:

TASKS	TARGET DATES
Maintain and operate the Devils Lake Outlet	Ongoing
Develop discharge monitoring reports for outlet operation	As needed
Work with local and federal entities to remove additional water from the lake	Ongoing

Floodplain Management

Program Overview:

The National Flood Insurance Program (NFIP) works on a partnership formed of federal, state, and local governments. Local governments use state laws concerning planning, zoning and development as a basis to practice floodplain management. The NFIP provides flood insurance for structures in re-

turn for participating communities promising to guide development in identified flood hazard areas. The North Dakota Floodplain Management Act of 1981 adopts the NFIP by reference in Chapter 61-16.2 of the North Dakota Century Code. This chapter was amended in 1999 and again in 2003 by the State Legislature, which broadened and refined the duties of the SE.

The Federal Emergency Management Agency (FEMA) provides funding to states for their role in the Community Assistance Program (CAP) and Map Modernization (and its successor program, Risk Map).

Agency Goals Satisfied:

- To manage water resources for the future welfare and prosperity of the people of North Dakota.
- To educate the public regarding the nature and occurrence of North Dakota's water resources.
- To collect, manage, and distribute information to facilitate improved management of North Dakota's water resources.

Program Objectives:

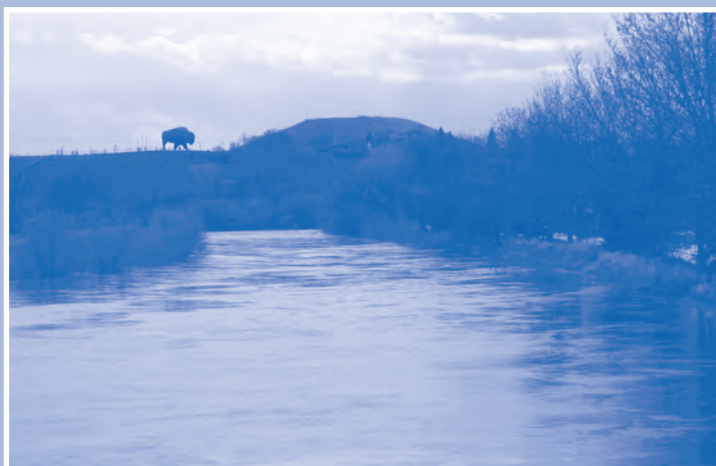
- Manage the state's floodplains to reduce flood damages throughout the state.
- Collect and distribute information relating to flooding and floodplain management.
- Coordinate local, state, and federal floodplain management activities.
- Assist communities in their floodplain management activities.
- Fulfill all existing responsibilities under FEMA's CAP.
- Support the digital flood map conversion process as part of FEMA's Map Modernization and its successor program, Risk Map.

Assumptions and Obstacles:

Successful management of the state's floodplain areas will continue to require active participation and involvement of local communities.

Action Plan:

TASKS	TARGET DATES
Monitor community floodplain management compliance under CAP and provide technical assistance regarding the NFIP	Sept. 30 annually
Conduct floodplain management training workshops and participate in related training workshops under CAP	Sept. 30 annually
Promote the availability of mapping products produced as part of Map Modernization and its successor program, Risk Map	Sept. 30 annually
Conduct floodplain determinations for the Bank of North Dakota	Quarterly



Program Overview:

The Investigations Section is responsible for the preliminary engineering of surface water projects throughout the state. These projects include flood control, irrigation development, recreation dams, and bank stabilizations. The Investigations Section also conducts and reviews hydrologic and hydraulic models for floodplain management and dam design and repair. This includes reviewing proposed modifications to existing regulatory floodways that require SE approval.

In addition, the Investigations Section provides technical expertise in dealing with the management of the Missouri River, flood response, and other water issues, as well as providing government survey information to the public.

Investigations

Action Plan:

TASKS	TARGET DATES
Provide technical reviews of Missouri River management issues, especially the Missouri River Authorized Purposes Study	As needed
Manage government survey information	Ongoing
Conduct water resource investigations	As needed
Provide technical support in response to flooding and other disasters	As needed
Review proposals for modifications of regulatory floodways	As needed

Agency Goals Satisfied:

- To develop water resources for the future welfare and prosperity of the people of North Dakota.
- To manage water resources for the future welfare and prosperity of the people of North Dakota.

- To collect, manage, and distribute information to facilitate improved management of North Dakota's water resources.

Program Objectives:

- Conduct preliminary engineering, hydrologic, and hydraulic studies, and review studies done by others.
- Provide engineering services for surface water projects throughout the state.

Assumptions and Obstacles:

Severe flooding problems throughout the state (especially in the Devils Lake basin), and concerns over changes to management of the Missouri River system have consumed much of the Investigations Section's time over the course of the last decade. With those issues expected to be in the forefront in the coming years, that trend will likely continue.

Program Overview:

The Municipal, Rural, and Industrial (MR&I) water supply program is one source of federal funding used for public water systems. North Dakota's MR&I program was originally established by the 1986 Garrison Diversion Reformation Act. At that time, Congress authorized \$200 million in the form of a maximum grant of 75 percent. The state has since received the original \$200 million from the 1986 Act. Later, the Dakota Water Resources Act of 2000 added an additional \$200 million for the MR&I program, which is indexed and the state has received \$111 million. Funding used for the MR&I program is provided through the U.S. Bureau of Reclamation (USBOR). The Garrison Diversion Conservancy District signed a cooperative agreement with the USBOR to receive the federal funding. Further, the SWC and Garrison Diversion Conservancy District signed a joint powers agreement to administer the program

based on a memorandum of understanding.

Because of North Dakota's MR&I program, regional and rural water systems have continued to expand throughout the state. As a result of

Municipal, Rural, & Industrial Water Supply Program

this added assistance, there are now thirty regional water systems in North Dakota, providing quality drinking water to over 200,000 people in 319 cities, 64 various water systems, and over 90,000 rural residents. Currently, all or part of 47 of North Dakota's 53 counties, are served by regional water systems, and most have plans to expand.

Agency Goal Satisfied:

- To develop water resources for the future welfare and prosperity of the people of North Dakota.

Program Objectives:

- Coordinate alternative funding solutions for water supply and water treatment projects to help water users in cities and rural water areas obtain an adequate supply of quality water for municipal, rural, and industrial purposes.
- Provide planning and technical assistance to water supply systems to promote wise use of water resources throughout the state.

Assumptions and Obstacles:

Adequate federal funding must be received in a manner that does not impede progress.

For a map of North Dakota's Regional Water Systems, see the Appendix.

Action Plan:

TASKS	TARGET DATES
Implement a five-year plan for MR&I project funding requests	Ongoing
Participate in meetings with communities and rural water districts to provide technical and planning assistance	Ongoing
Provide MR&I budget estimates for project development	Ongoing
Coordinate meetings with various funding entities to discuss projects	Ongoing
Work with North Dakota's Congressional Delegation to increase federal MR&I appropriations	Ongoing
Coordinate with the Garrison Diversion Conservancy District in the prioritization and allocation of MR&I funds	Ongoing

Project Overview:

The North Dakota Cloud Modification Project (NDCMP) is a long-running, operational cloud seeding program with the dual purposes of hail suppression and rainfall enhancement.

The target area covers nearly 10,500 square miles in six western North Dakota counties during the months of June, July, and August. Counties partner with the state through the ARB, employing contractors that provide the aircraft, pilots, seeding equipment, and radar maintenance services. The ARB owns and operates two radar systems and employs the meteorologists to coordinate seeding operations. In addition, the program offers two intern programs; one for students studying meteorology, and another for pilots studying at the University of North Dakota's J.D. Odegaard School for Aerospace Sciences.

Evaluations of the NDCMP indicate that the program reduces hail damage to crops by 45 percent, increases wheat yields by 5.9 percent, and increases rainfall between 5 and 10 percent. A 2009 economic study estimates the NDCMP increases the value of agricultural production by \$12 million to \$19.7 million annually.

North Dakota Cloud Modification Project



Action Plan:

TASKS	TARGET DATES
Hire NDCMP field personnel	May, annually
Conduct pre-project ground school	May, annually
Conduct NDCMP operations	June-Aug., annually
Conduct data analysis and final reporting to participating counties	Winter, annually
Report cloud seeding activities to the National Oceanic and Atmospheric Administration	Spring, Fall, annually

Agency Goal Satisfied:

- To manage water resources for the future welfare and prosperity of the people of North Dakota.

Project Objectives:

- Reduce hail damages in the NDCMP target area.
- Enhance summer rainfall from thunderstorms in the NDCMP target area.

Assumptions and Obstacles:

The project assumes continued participation by western North Dakota counties and cost-sharing of one-third of project costs by the state.

For a map of the North Dakota Cloud Modification Project, see the Appendix.

Project Overview:

North Dakota Century Code (NDCC), Section 61-24.6 declares necessary the pursuit of a project "...that would supply and distribute water to the people of northwestern North Dakota through a pipeline transmission and delivery system..." NDCC 61-24.6 authorizes the SWC to construct, operate, and manage a project to deliver water throughout northwestern North Dakota.

Northwest Area Water Supply

The SWC began construction on the Northwest Area Water Supply (NAWS) project in April 2002. The first four contracts involving 45 miles of pipeline from the Missouri River to Minot were completed in the spring of 2009. The project is currently serving Berthold, Kenmare,

Burlington, West River Water District, Upper Souris Water District, Mohall, Sherwood, All Seasons Water District, and Minot - that also serves North Prairie Water District. NAWS is getting interim water supply through a ten-year contract with Minot, which expires in 2018.

In 2002, a lawsuit was filed by Manitoba; primarily arguing that NAWS could increase the risk of transferring non-native biota between the Missouri River and Hudson Bay drainage basins. In 2009, Missouri filed against the USBOR and the Corps of Engineers; primarily arguing NAWS would negatively affect depletions of the Missouri River. The Missouri filings were ultimately combined with Manitoba's. Various elements of project construction have been allowed to proceed by court order, despite the pending lawsuit. The Court found that the EIS completed in 2009 was not adequate and needed to address impacts to Canada and Missouri River depletions. Scoping for a Supplemental EIS to address the Court's May 2009 order were started in July 2010. When completed, the project is designed to provide up to 26 million gallons of Missouri River water per day to tens of thousands citizens in northwest North Dakota.

Agency Goal Satisfied:

- To develop water resources for the future welfare and prosperity of the people of North Dakota.

Project Objective:

- Finish construction of the pretreated water delivery system to Minot.

Assumptions and Obstacles:

- Adequate federal funding must be received in a manner that does not impede progress.
- Completion of the Supplemental EIS in the fall of 2012, and decisions on the level of treatment greatly affect funding needs, and design and construction schedules.
- If Minot's aquifers continue to decline, and progress is not made in getting the needed water supply from Sakakawea, then the existing communities and rural water systems will need to return to their inadequate ground water supplies.

Action Plan:

TASKS	TARGET DATES
Complete construction of pipeline between Minot and the Air Force base	2011-2012
Complete construction of pipeline between the Air Force base and the Upper Souris Water District	2011-2012
Assist the USBOR with preparation of a Supplemental EIS to address the Court's May 2009 order	2011-Fall 2012
Complete court filings to lift the injunction	Winter 2012
Initiate design work on a biota treatment plant and intake, and remaining contracts to move water from Lake Sakakawea to Minot	Spring 2013
Develop plans and manuals as required by EIS	Spring 2013

For a map of the Northwest Area Water Supply project, see the Appendix.

Project Overview:

The Red River Valley Water Supply Project was authorized by the Dakota Water Resources Act of 2000, which required that a Needs and Options Report and EIS be completed with joint leadership between the federal government and North Dakota. The purpose of the EIS, which was completed in December 2007, is to evaluate alternatives to meet the long-term water needs of the Red River Valley in North Dakota, and the cities of East Grand Forks, Moorhead, and Breckenridge in Minnesota.



Red River Valley Water Supply Project

As part of the Final EIS, the USBOR and the state of North Dakota identified the Garrison Diversion Unit Import to the Sheyenne River Alternative as the preferred alternative.

As the State of North Dakota and the federal government continue to pursue the development of the preferred alternative, the SWC will continue to provide technical and financial assistance toward project completion.

Agency Goal Satisfied:

- To develop water resources for the future welfare and prosperity of the people of North Dakota.

Program Objective:

- Provide technical expertise and financial assistance toward the development of the Red River Valley Water Supply Project study.

Action Plan:

TASKS

Provide technical and financial assistance toward the completion of the Red River Valley Water Supply project preferred alternative

TARGET DATES

Ongoing

Assumptions and Obstacles:

The SWC will be one of the funding agencies involved in financing the preferred alternative, and staff will continue to participate in a technical advisory capacity. However, project management will be under the oversight of the USBOR and the Garrison Diversion Conservancy District. Thus, overall progress and target dates for project completion will not be controlled by the SWC.

For a map of the Red River Valley Water Supply Project preferred alternative, see the Appendix.

Program Overview:

As authorized by NDCC 61-03, 61-04, and 61-16.1, the SE has been responsible for regulating the construction of dams, dikes, and other water control facilities since the 1930s. Since 1957, NDCC 61-32 and NDCC 61-15 have authorized the SE to regulate drainage. And, the SE has been responsible for managing sovereign lands since 1989, as authorized by NDCC 61-33. The SE coordinates these regulatory activities with the county water resource districts (WRDs) across the state.

In addition to these permitting processes, the Regulatory Program provides technical assistance to local water resource districts, makes flow determinations in accordance with NDCC 24-03-08, provides appeal review of WRD decisions, serves as a source of information to the public, handles easement releases for abandoned structures, participates in training workshops, represents the SE on various interagency committees, and provides agency review of Public Service Commission mining permits and U.S. Army Corps' Section 404 permits.

Regulatory Program

Agency Goals Satisfied:

- To regulate the use of water resources for the future welfare and prosperity of the people of North Dakota.
- To manage water resources for the future welfare and prosperity of the people of North Dakota.
- To collect, manage, and distribute information to facilitate improved management of North Dakota's water resources.

Action Plan:

TASKS	TARGET DATES
Process 100 percent of all incoming construction, drainage, and sovereign land permit applications	June 30, 2013
Provide technical assistance to WRDs as requested	Ongoing
Address 100 percent of all incoming WRD decision appeals	June 30, 2013
Digitally map 100 percent of all permitted assessment drains and dams that are currently in the agency's database	June 30, 2013
Provide 100 percent of flow determinations requested per NDCC 24-03-08	June 30, 2013
Review 100 percent of incoming Public Service Commission and U.S. Army Corps' Section 404 permits	June 30, 2013
Implement Sovereign Land Management Plan recommendations	Ongoing

Program Objectives:

- Regulate, where appropriate, the construction of dams, dikes, water control facilities, drainage works, and projects on sovereign lands, to ensure proper management of North Dakota's land and water resources and public safety.
- Interact with the public, continue involvement on interagency committees, and participate in training workshops, to facilitate education and information dissemination to other water resource managers – especially at the local level.

Assumptions and Obstacles:

Enforcement of various sovereign land-related regulations will require continued cooperative efforts with the Game and Fish Department and other law enforcement.

Project Overview:

North Dakota's Silver Jackets Program was initiated in January 2010 (in response to the extensive flooding of 2009) with the intent to identify comprehensive, long-term flood solutions through a collaborative, interagency effort between state and federal authorities. A Silver Jackets charter was completed and signed between the SWC, North Dakota Division of Emergency Services, FEMA Region VIII, and the U.S. Army Corps of Engineers (St Paul and Omaha districts) in May 2010. The Corps of Engineers initiated the Silver Jackets concept through a partnership with FEMA in 2005 with a goal of establishing Silver Jackets teams in at least one state in each Corps division, and ultimately one in each state.

Silver Jackets Program

Action Plan:

TASKS	TARGET DATES
Promote awareness of North Dakota's new Silver Jackets Program	Ongoing / As needed
Assist communities with FEMA's levee recertification requirement	Ongoing / As needed
Assist communities with flood control and long-term flood mitigation project requests	Ongoing / As needed
Assist selected counties and communities with Flood Emergency Operation Plan development and maintenance	Ongoing / As needed
Coordinate with Silver Jackets Program charter agencies	Ongoing / As needed

Agency Goal Satisfied:

- To manage water resources for the future welfare and prosperity of the people of North Dakota.
- To educate the public regarding the nature and occurrence of North Dakota's water resources.

Project Objectives:

- Educate state agencies, county water boards, and communities on the Silver Jackets Program.
- Educate communities on FEMA's levee recertification requirement or Provisionally Accredited Levee (PAL) program.
- Assist communities with project requests in support of flood control or long term flood mitigation projects through the SWC and other federal or state agencies as appropriate.
- Assist communities with flood related Emergency Operation Plans.
- Assist in educating counties and communities on the importance of maintaining current Hazard Mitigation Plans.
- Coordinate with Silver Jacket charter agencies to discuss state flood-related priorities, recommendations, efforts and improve communication.

Assumptions and Obstacles:

Local, state, and federal coordination in support of comprehensive long-term flood control and mitigation efforts must continue throughout the state to ensure success. Continued funding support of the program is also critical.

Southwest Pipeline Project

Project Overview:

The Southwest Pipeline Project (SWPP) is a regional water supply system that draws water from Lake Sakakawea and serves over 35,000 people in southwest North Dakota, including 28 communities, and about 4,000 rural hookups – with plans to expand.

NDCC, Section 61-24.3 declares necessary that the SWPP “...be established and constructed, to provide for the supplementation of the water resources of a portion of the area of North Dakota south and west of the Missouri River with water supplies from the Missouri River for multiple purposes, including domestic, rural, and municipal uses.” The SWC has been working to develop the SWPP ever since – with construction beginning in 1986. NDCC 61-24.6 authorizes the SWC to construct, operate, and maintain the project.

Private contractors are constructing the project according to designs developed by the SWC’s engineering contractor. The SWC oversees the design and construction of the project.

Agency Goal Satisfied:

- To develop water resources for the future welfare and prosperity of the people of North Dakota.

Program Objective:

- Continue construction of the Oliver, Mercer, North Dunn, and Zap, Center Regional Service Areas.

Assumptions and Obstacles:

Adequate state and federal funding must be received in a manner that does not impede progress.

Action Plan:

TASKS	TARGET DATES
Complete the Oliver, Mercer, North Dunn Water Treatment Plant	Dec. 2011
Construct main transmission facilities in the Zap and Center Service Areas	Sept. 2012
Construct the Zap Service Area rural distribution pipeline	Sept. 2012
Design and bid the Center Service Area rural distribution pipeline	Early 2013
Begin construction on transmission facilities in the Dunn Service Area	Late 2013



For a map of North Dakota’s Southwest Pipeline Project, see the Appendix.

Program Overview:

By virtue of North Dakota Century Code, Section 61-02-14, Powers and Duties of the Commission; and Section 61-02-26, Duties of State Agencies Concerned with Intrastate Use or Disposition of Waters, the Commission is required to develop and maintain a comprehensive State Water Management Plan (SWMP) for the sound management of North Dakota's water resources. The most recent comprehensive SWMP was completed in 2009. Following major water plan revisions, Water Development Reports (WDR) are published on a biennial basis to assist with agency budgeting efforts, and to provide updated project and funding information during Legislative Assemblies.

State Water Management Plan



Agency Goals Satisfied:

- To develop comprehensive plans to meet North Dakota's water resource needs.
- To manage water resources for the future welfare and prosperity of the people of North Dakota.
- To educate the public regarding the nature and occurrence of North Dakota's water resources, and water development efforts.

Program Objectives:

- Coordinate implementation of recommendations included in the 2009 SWMP.
- Develop a 2013-2015 WDR to serve as a biennial update to the 2009 SWMP.

Action Plan:

TASKS	TARGET DATES
Coordinate recommendations included in the 2009 SWMP	Ongoing
Contact local water managers to request updated water project/program information, including funding timeframes for the 2013-2015 WDR	Jan. 2012
Develop a water resource project/program inventory for the 2013-2015 biennium and beyond	May 2012
Process project information for use in SWC budget development	Aug. 2012
Develop the final 2013-2015 WDR	Dec. 2012
Present the 2013-2015 WDR to the Legislative Assembly - outlining funding needs	Jan. 2013

Assumptions and Obstacles:

Active participation and accurate input from local water managers and project sponsors regarding project funding needs will be critical to more accurate budget development, and successful statewide water planning efforts.

Project Overview:

Project WET (Water Education for Teachers) is a balanced, supplemental and interdisciplinary water science and water education program for formal and non-formal K-12 educators and students. Project WET facilitates and promotes the learning, awareness, appreciation, knowledge, exploration, and stewardship of North Dakota's water resources. Project WET programs are designed to help youth learn how to think, and not just what to think, while providing means for teachers and students to grasp fundamental concepts related to water resources, watersheds, and the environment. Through Project WET programs, educators, and students obtain skills for acquiring and applying knowledge, and to evaluate the results of their actions toward North Dakota's water resources.

Water Education For Teachers

Agency Goal Satisfied:

- To educate the public regarding the nature and occurrence of North Dakota's water resources, and water development efforts.

Project Objectives:

Develop, promote, deliver, and provide to K-12 formal and non-formal educators and students:

- Indoor and outdoor water science and water education programs;
- Balanced water resource information and education tools, services, programs, and resource materials;
- Institutes, workshops, in-service and pre-service educational opportunities; and
- Classroom events, youth camps, youth water festivals, community water or environmental awareness, and youth service events.

Assumptions and Obstacles:

Continued funding through EPA's Section 319 Grant is critical to the success and continuation of the WET program.

Action Plan:

TASKS	TARGET DATES
Maintain Project WET classroom-ready teaching aids and service contracts in support of educational efforts	As needed
Provide in-service and pre-service credit and non-credit educational programs for K-12 educators	Ongoing
Provide varying educational programs for K-12 students, communities, and the public	Ongoing
Complete facilitator leadership training	Feb. 2013
Provide funds for the Keep North Dakota Clean water education poster contest	March 2012 & 2013
Maintain the Project WET facilitator network, and complete all Section 319 EPA grant development and reporting requirements	Ongoing
Complete two Project WET watershed institutes	July 2011 & 2012

Program Overview:

Significant volumes of data are contained in the SWC's Water Resources Information Management Systems (WRIMS). Private individuals and private enterprise, as well as local, county, state, federal, and international entities routinely make use of various portions of these data sets. Staff can facilitate the ability of interested parties to access data of interest to them. A web-based interactive interface is available to allow for direct access to the data on the part of the interested parties. Additionally, numerous interpretive reports are available for various water resources in the state.

Water Resource Data Information Dissemination

Action Plan:

TASKS	TARGET DATES
Anticipate uses for which the data would be needed	Ongoing
Educate staff on the uses of WRIMS as improvements are implemented	As needed
Communicate with interested parties to determine their informational needs	As requested
Write unique programs to meet needs of requests of an unanticipated nature	As requested
Image and store well drilling completion reports	Ongoing

Agency Goals Satisfied:

- To educate the public regarding the nature and occurrence of North Dakota's water resources.
- To collect, manage, and distribute information to facilitate improved management of North Dakota's water resources.

Program Objectives

- Maintain quality water resource data.
- Develop and maintain databases for retrieval of data.
- Maintain trained staff to interpret data.
- Develop and maintain web-based integration for the broadest possible access to data.

Assumptions and Obstacles:

The continuation of the in-house and online retrieval system will depend on the ability of the SWC to maintain the 4-D Database.



Program Overview:

Water resource data pertaining to water levels, water quality, and well information is collected on a continuing basis. This data is stored in an Internet-accessible database. The database currently contains about 3.9 million water-level measurements, over 34,000 site locations, nearly 65,000 water quality analyses, and 25,000 sites with lithologic descriptions. Additional data acquisition sites are implemented as needed through time. Aquifer parameters and properties are evaluated through an aquifer-testing program.

Water Resource Monitoring



Agency Goals Satisfied:

- To manage water resources for the future welfare and prosperity of the people of North Dakota.
- To educate the public regarding the nature and occurrence of North Dakota's water resources.
- To collect, manage, and distribute information to facilitate improved management of North Dakota's water resources.
- To conduct research into the processes affecting the hydrologic cycle to improve the management of North Dakota's water resources.

Program Objectives:

- Collect water resource data.
- Organize and store water resource data.
- Evaluate water resource data and future data needs.

Assumptions and Obstacles:

Budget constraints have reduced the number of stream gauges in the USGS Cooperative Program.

Action Plan:

TASKS

TARGET DATES

Install test holes and plug obsolete observation wells	April-Dec., annually
Install 125 to 175 monitoring wells	April-Dec., annually
Install 20 to 30 staff gauges, monitor water levels and flows	April-May, annually
Measure 25,000 to 30,000 water levels in wells and surface water bodies	April-Dec., annually
Collect data from 60 to 70 continuous water level recorders	Jan.-Dec., annually
Collect 1,500 to 2,000 samples from wells and surface water bodies	April-Dec., annually
Analyze samples for various chemical constituents	April-Jan., annually
Repair and maintain 3,500 to 4,000 measurement and sampling locations	April-Dec., annually
Enter data into the database	Ongoing
Coordinate the USGS cooperative water resource monitoring program	March-Dec., annually
Conduct aquifer tests	As requested / needed

Program Overview:

Water utilization is a key ingredient to many potential opportunities for economic development. Numerous studies and reports have documented potential water supplies for economic development.

Additionally, existing reports and/or water resource data are interpreted by staff in the form of short reports to aid industries in determining the viability of various water resources with respect to their water needs in their consideration of locating in North Dakota.

The SWC also provides cost-share support for several activities designed to strengthen the state's economy. The SWC, in conjunction with the Bank of North Dakota, provides cost-share for new irrigation under the auspices of the AgPACE program. The SWC also provides support to the North Dakota Irrigation Association (NDIA).

Agency Goals Satisfied:

- To develop water resources for the future welfare and prosperity of the people of North Dakota.
- To manage water resources for the future welfare and prosperity of the people of North Dakota.

Program Objectives:

- Identify and evaluate potential water supplies for economic development.
- Support programs to encourage water-using industries.
- Support programs to encourage irrigation.

Action Plan:

TASKS	TARGET DATES
Produce "synopsis" reports on water supplies for interested entities	As requested
Produce or provide water resource interpretive reports	Ongoing/ As requested
Administer the AgPACE program	Ongoing
Support NDIA's efforts to expand irrigation development	Ongoing

Assumptions and Obstacles:

There is a limited amount of ground water of a quality suitable for irrigation and industry. The one significant water resource in the state, the Missouri River, is not located where most potential water users want to locate their enterprises.

Water Resource-Related Economic Development



Program Overview:

The SWC's water resource research involvement falls into three categories. The first is where the SWC provides monetary support for water-resource related studies. Generally this research is done by the USGS or universities. The second category is where the SWC enters into a cooperative study, again generally with university researchers or the USGS. The third category is when the entire study is conducted by SWC staff.

Water Resource Research

Agency Goal Satisfied:

- To conduct research into the processes affecting the hydrologic cycle to improve the management of North Dakota's water resources.

Program Objectives:

- Support research into water resources of the state.
- Conduct studies of the nature and occurrence of water to optimize its conservation and development throughout the state.

Assumptions and Obstacles:

Continuing or reformulated research could result from these studies.



Action Plan:

TASKS	TARGET DATES
Complete the Water Quality Assessment of National Guard Camp Grafton South Unit	Spring 2011
Complete an annual review and make decisions on graduate Water Resource Investigations (ND Water Resource Institute)	Annually
Cooperate with the USGS to develop a "Stream Stats" website in ND	2011
Conduct an evaluation of nitrate contamination and remediation in the Karlsruhe aquifer	Annually through 2011
Assist with a study of irrigation through tile drains in Richland County	Spring 2011
Report on water quality and water levels in the Tolna Coulee (Devils Lake Joint Board)	Annually

Program Overview:

NDCC 61-04-02 requires all water uses except for domestic, livestock, fish, wildlife, and other recreational uses (unless the aforementioned are greater than 12.5 acre-feet per year) to apply for a water permit before putting water to beneficial use. Set procedures are mandated by NDCC and regulations. Staff guide applicants through this process. In addition, records, documents, and a relational database are meticulously maintained. Upon completion of a water use development, inspections are conducted to verify the ability of the applicant to put the water to beneficial use. Based upon the inspection report, a conditional permit is perfected and filed with the county Register of Deeds as a water right associated with the land. Annual, self-reported water use forms are recorded to document that water is being put to beneficial use and the water right is being maintained.



ND OIL AND GAS

Water Rights Administration & Processing

Agency Goal Satisfied:

- To regulate the use of water resources for the future welfare and prosperity of the people of North Dakota.

Program Objectives:

- Process water permit applications.
- Maintain meticulous water right records.
- Perfect conditional water rights once developed.
- Document permitted water use.

Action Plan:

TASKS	TARGET DATES
Guide applicants through the water permit application process	Ongoing
Maintain records in each water permit application file	Ongoing
Key appropriate data into the water permit database	Ongoing
Conduct 65-85 inspections of 'completed' conditional permits	Annually
Perfect 50-70 inspected, completed conditional permits	Annually
Send out requests for annual use reports to permit holders	Nov./Jan., annually
Complete the annual water use data collection process	May, annually
Develop a summary report on annual water use in ND	Sept., annually
Measure pumping rates to help establish water rights	Ongoing
Maintain water use records to quantify water rights	Ongoing

Assumptions and Obstacles:

- Water use records are dependent upon encouraged self-reporting of annual water use.
- Some conditional water permits take long periods of time to resolve water and legal complications.

Program Overview:

The allocation of water resources for beneficial use can result in competition for those resources. This competition can cross political boundaries. Efforts are continually underway to

protect prior rights while maximizing benefits. These efforts are expended externally in other states and provinces, as well as internally with respect to other state agencies having separate regulatory authorities. In the assessment of the degree to which

Water Rights Evaluation & Adjudication

the state's water resources can be utilized beneficially, the rights of prior appropriators need to be assessed and protected. Staff prepares recommendations for the SE on the basis of encouraging beneficial use while protecting prior rights.

Agency Goals Satisfied:

- To regulate the use of water resources for the future welfare and prosperity of the people of North Dakota.
- To manage water resources for the future welfare and prosperity of the people of North Dakota.

Program Objectives:

- Pursue cooperative efforts with neighboring states and provinces to plan for beneficial water management of shared water resources.
- Cooperate with agencies that have regulatory authority over North Dakota's water to protect and enhance the quality and quantity of North Dakota's water resources.
- Evaluate water permit applications and recommend decisions to the SE.

Assumptions and Obstacles:

Different organizations and neighboring states and provinces have unique perspectives and laws pertaining to water resources management. In the evaluation of ground water permit applications, the state's ground water resources are becoming more fully appropriated. Thus, the process of allocating additional water while protecting prior water rights is becoming more difficult and time-consuming.

Action Plan:

TASKS	TARGET DATES
Gather data on shared resources	As needed
Discuss possible actions regarding water resources	As needed
Negotiate water management decisions	Ongoing
Conduct water resource investigations	As needed
Prepare recommendations for the SE	Ongoing



ANGELA MAGSTADT

Program Overview:

In addition to water management planning efforts at the state level, the SWC believes that it is also beneficial for stakeholders that live and work within key watersheds of the state to guide the management of water resources in their region through the development of regional water plans. In order for regional planning efforts and studies to proceed and evolve in a productive manner, it is often required that local, state, and federal government officials participate in those planning processes as technical advisors.

In recent years, the SWC has provided technical assistance to the Devils Lake, Upper-Sheyenne, Red, and Missouri River joint water boards toward the development of water management plans and other watershed planning efforts. In addition, in the Red River basin, which is the focus of many projects and planning efforts, the SWC has an office with a full-time engineer in West Fargo.

Beyond participating in regional planning and coordination efforts within the state, SWC staff members are also involved with international and national organizations involved with interjurisdictional water management. Examples include the International Joint Commission, the Red River Basin Commission, the International Red River Board, the International Souris River Board, and the Missouri River Association of States and Tribes.

Agency Goal Satisfied:

- To manage water resources for the future welfare and prosperity of the people of North Dakota.

Program Objective:

- Provide technical expertise and assistance toward the development of regional watershed management and planning efforts, and studies.

Watershed Planning & Coordination

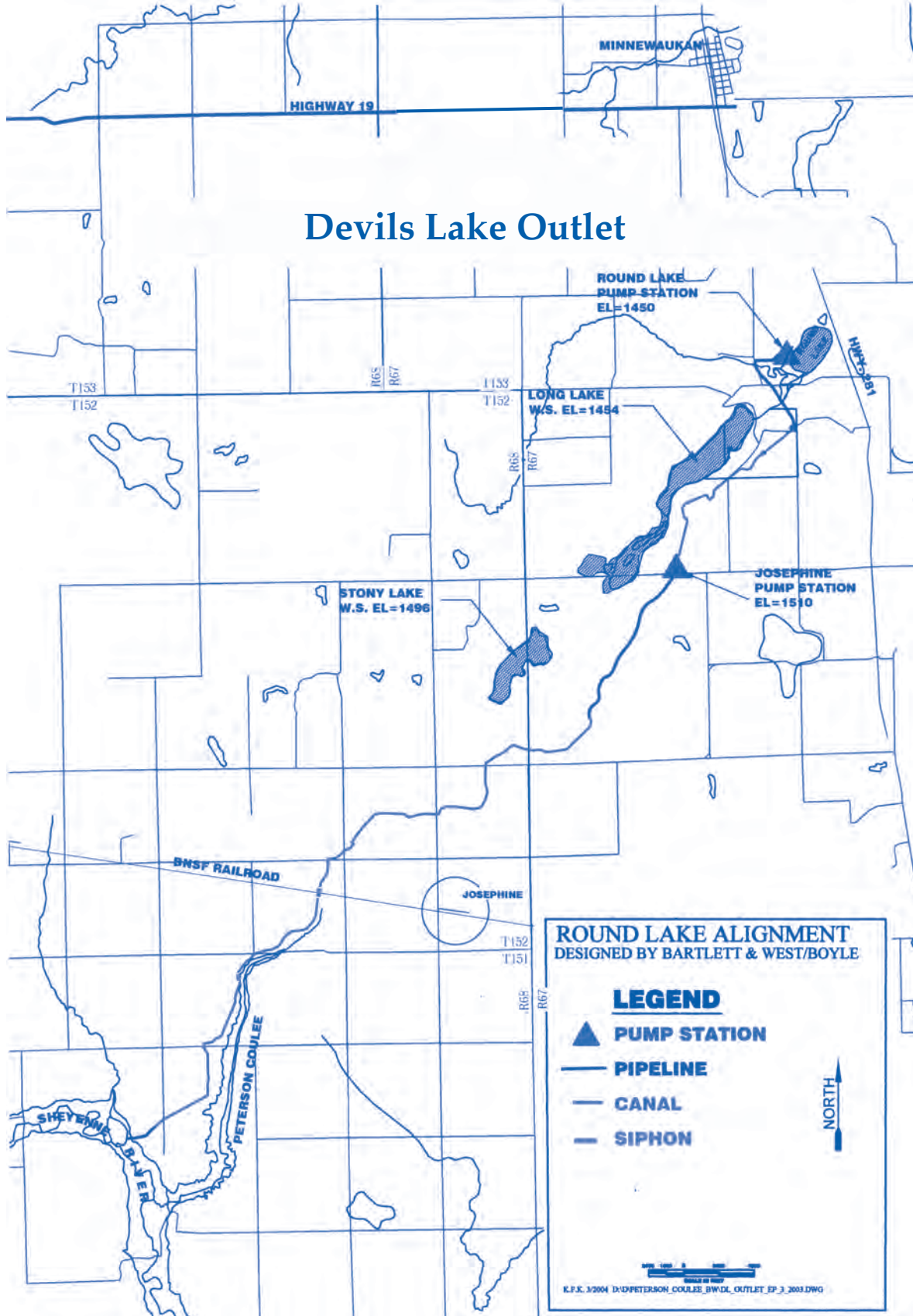
Action Plan:

TASKS	TARGET DATES
Provide technical assistance toward the implementation of the Red River Basin Commission's Natural Resource Framework Plan	Ongoing
Provide technical assistance toward the implementation of joint water board water management plans	Ongoing
Continue to participate as board members and technical advisors for international and national watershed planning and coordination efforts	Ongoing

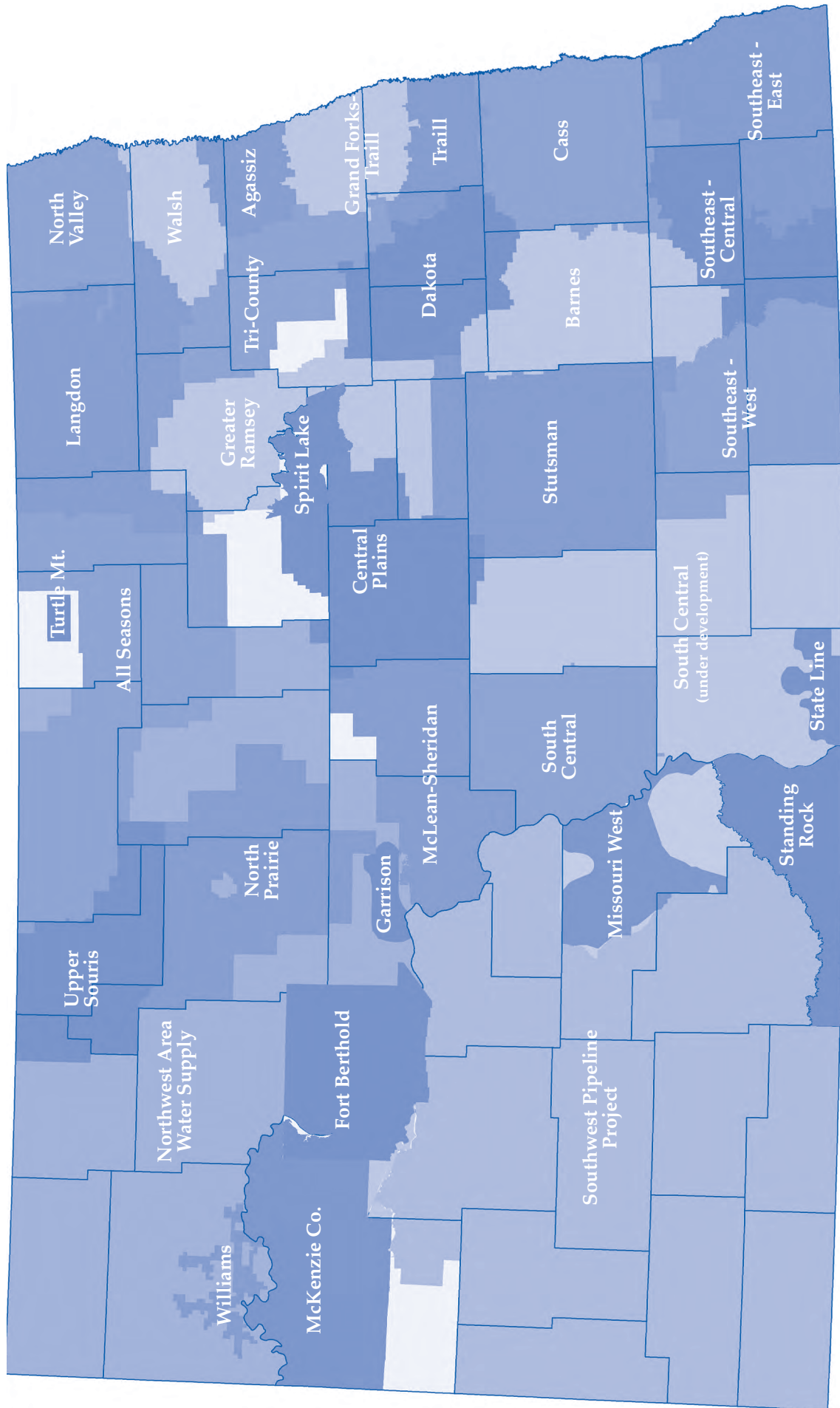
Assumptions and Obstacles:

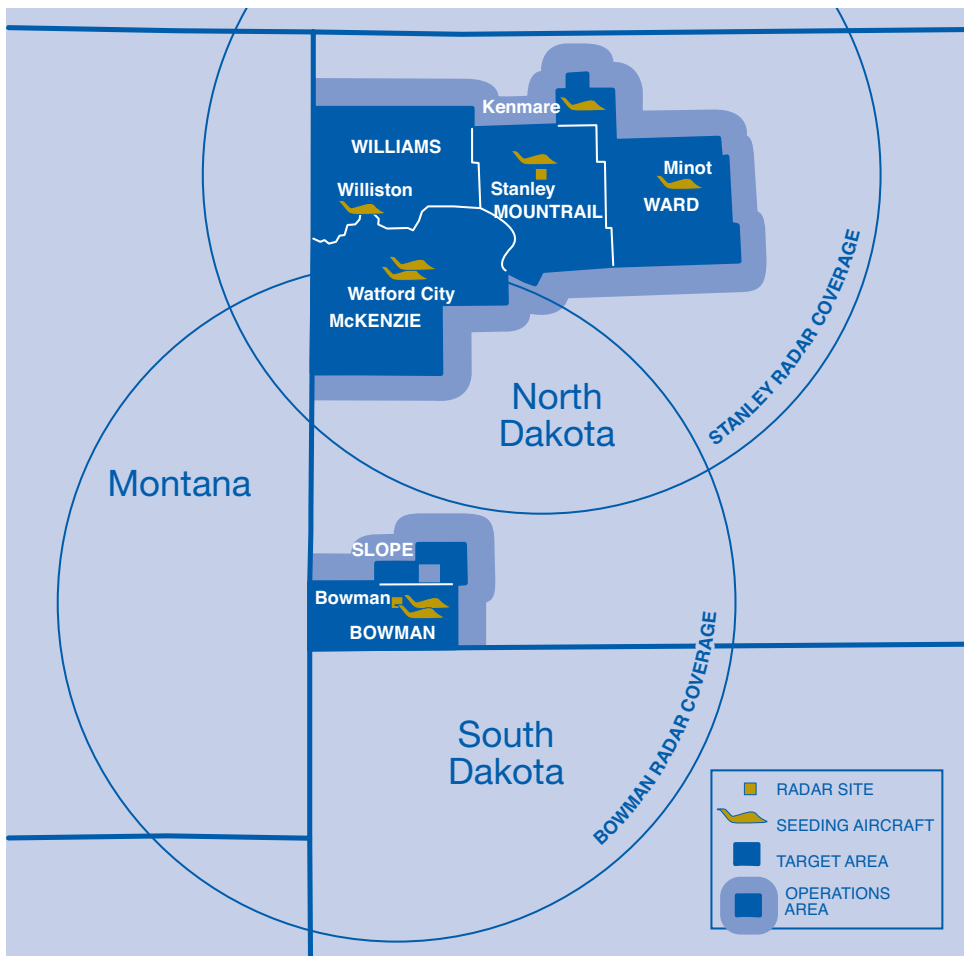
In order for all of the above organizations and planning/coordination efforts to succeed in the future, they will require continued commitment and dedication from all stakeholders involved in those processes.

Appendix

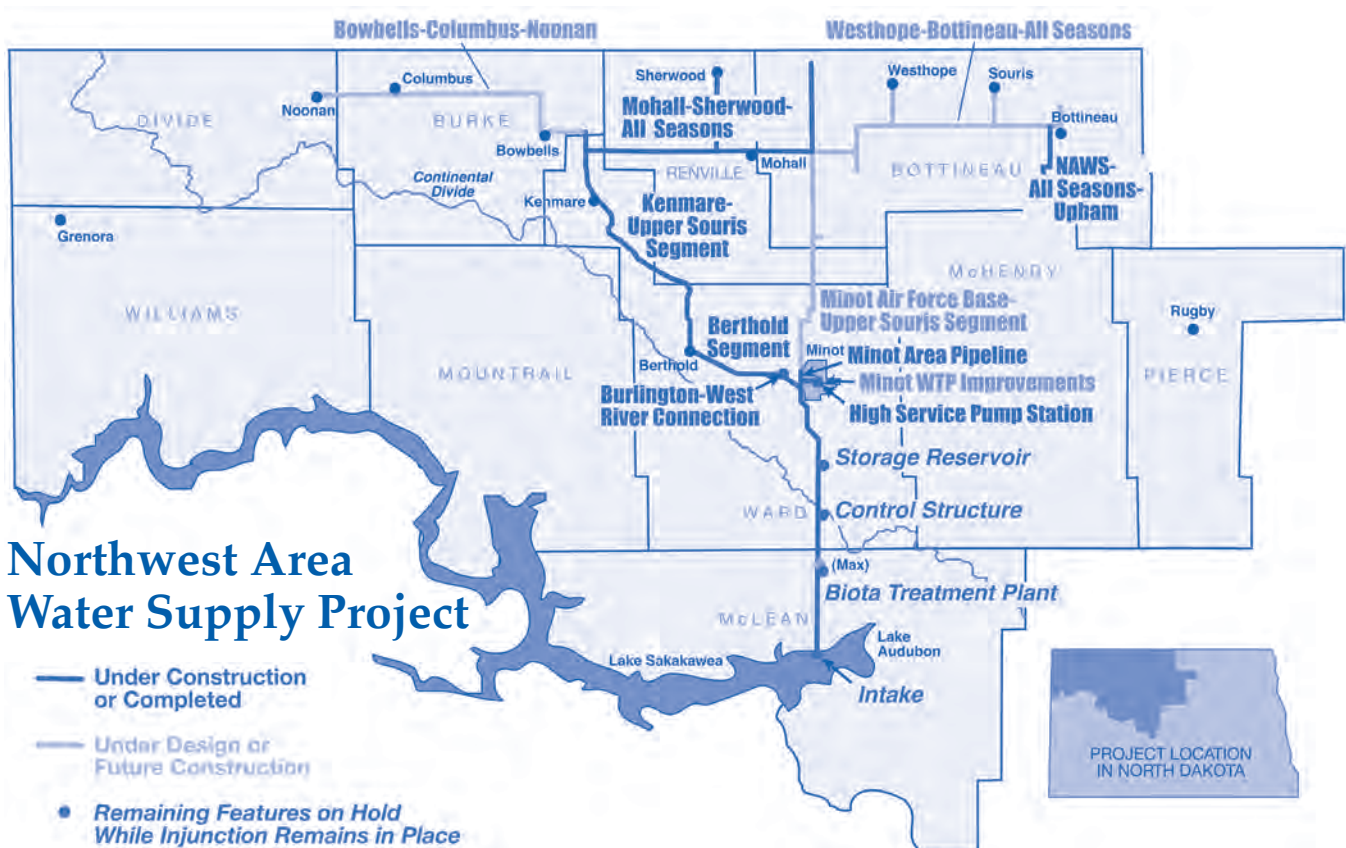


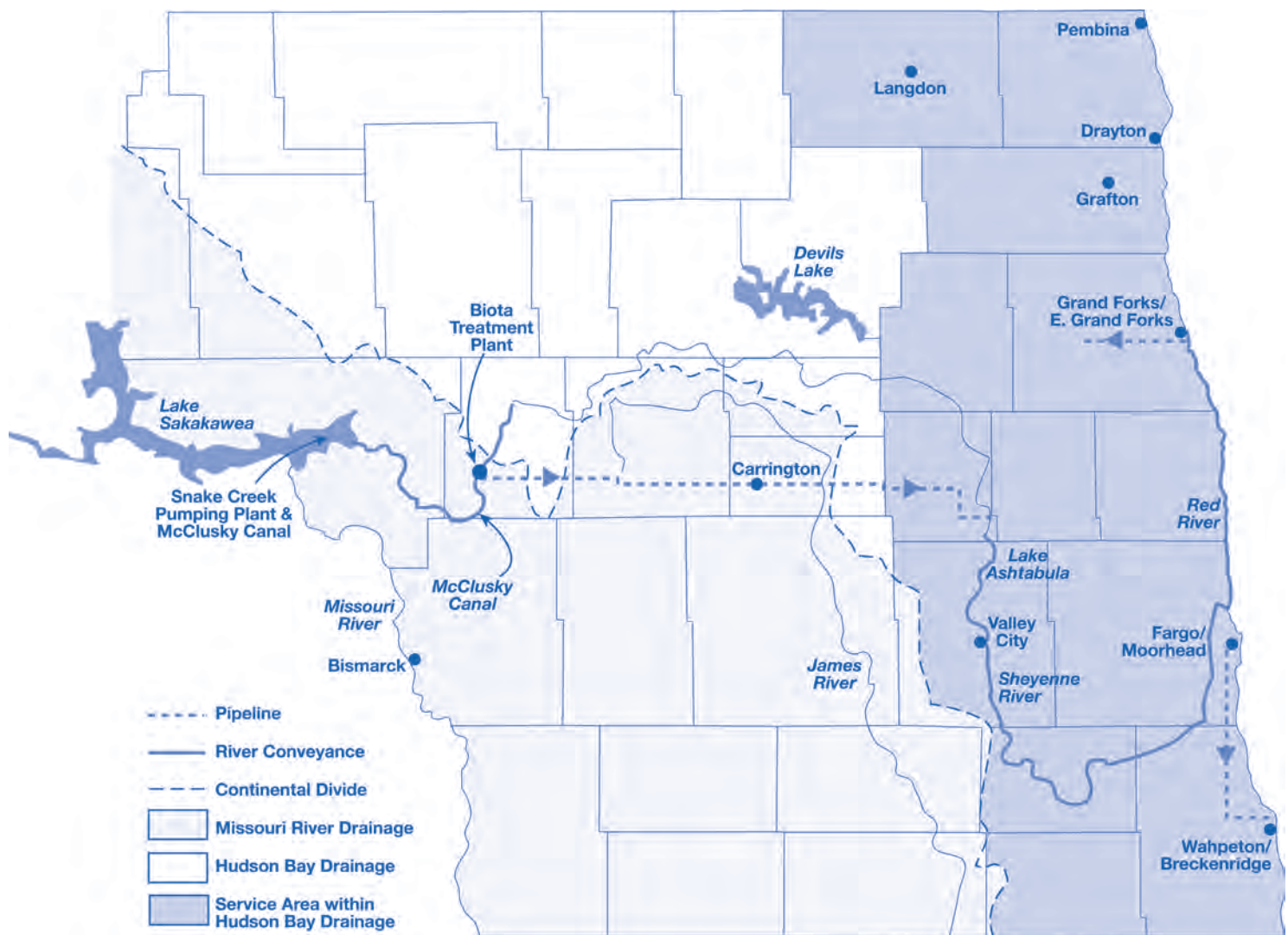
North Dakota Regional Water Systems





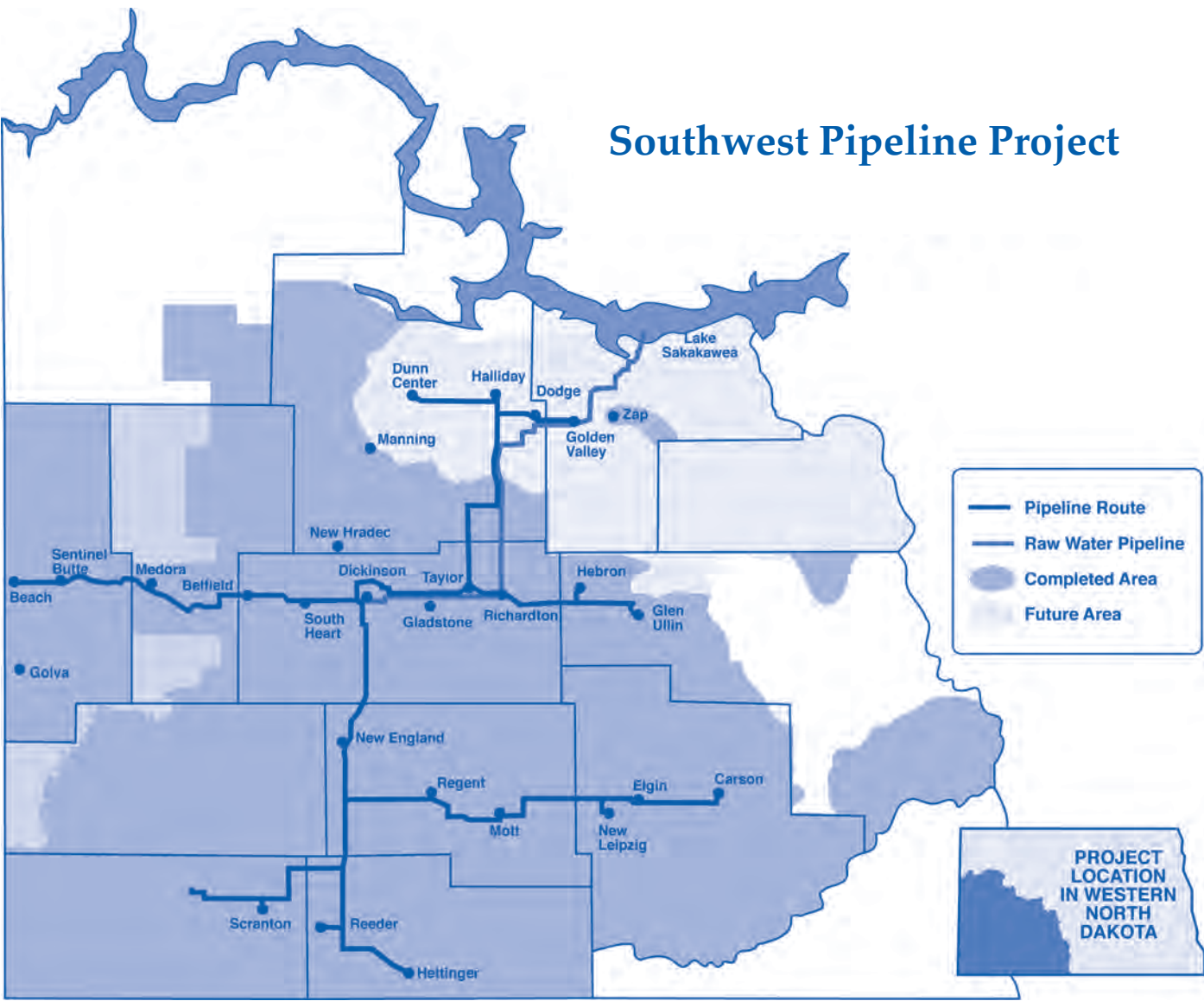
North Dakota Cloud Modification Project





Red River Valley Water Supply Project Preferred Alternative

Southwest Pipeline Project





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